Claims

1) Retroviral vectors comprising viral cores derived from murine leukemia virus (MLV) and virus envelopes consisting of surface envelope proteins and transmembrane proteins derived from human immunodeficiency viruses (HIV) or simian immunodeficiency viruses (SIV) and the virus envelopes comprising the full-length surface envelope protein and a truncated variant of the envelope protein.

2) Retroviral vectors according to claim 1, whereby the viral envelopes are derived from the human immunodeficiency virus type 1 or type 2 (HIV-1 or HIV-2) or are derived from simian immunodeficiency virus of *Cerecopithecus aethiops* (SIVagm) or of *Macaca mulatta* (SIVmac) or of Pan troglodydytes (SIVcpz) or of *Cerecopithecus mitis* (SIVsyk) or of *Papio sphinx* (SIVmnd) or of *Cercocebus atys* (SIVsm) or *Macaca nemestrina* (SIVmne).

3) Retroviral vectors according to claim 1 ~~or 2,~~ whereby the viral envelopes comprise a full-length surface envelope protein and a truncated variant of the transmembrane envelope protein, which is elongated by the C-terminus or any other fragment of the transmembrane envelope protein of the murine leukemia virus (MLV) or of any other retrovirus.

4) Method for the preparation of packaging cells, which produce retroviral vectors according to claim 1 ~~any of claims 1 to 3,~~ comprising the transfection of a packaging cell (*gag*-, *pol*- and expression construct-positive) that produces or does not produce *env*-negative MLV-derived envelope proteins with an expression-gene that comprises the genetic information for envelope proteins of HIV or SIV (*env*-positive).

5) Method for the preparation of packaging cells that produce retroviral vectors according to claim 1 ~~any of claims 1 to 3~~, comprising the transfection of a cell with the expression genes *gag* and *pol* and with an expression construct, comprising a packaging signal (psi) and the genetic information desired to be transferred and with an expression gene that contains the genetic information for envelope proteins of HIV or SIV.

6) Method according to claim 4, whereby the cell line TELCeB6 is used as a MLV *env*-negative cell line.

7) Method according to ~~any one of claims 4 to 6~~ claim 4, whereby pLβAc/env-Tr712-neo or pRep *Δ16 env*, pRep *Δ7 env*, pRep *Δ0 env*, pRep *Δ7MLV env* or pRep *Δ0MLV env* is used as *env* expression gene.

8) Packaging cells, obtainable by the methods according to ~~any one of claims 4 to 7~~ claim 4.

9) Use of the retroviral vectors according to ~~any one of claims 1 to 3~~ claim 1 as a medicament.

10) Use of the retroviral vectors according to ~~any one of claims 1 to 3~~ claim 1 for the preparation of a medicament to transfer genes into CD4-positive cells of mammalian origin.

11) Use of the retroviral vectors according to ~~any one of claims 1 to 3~~ claim 1 for the preparation of a medicament to transfer genes into human CD4-positive cells.

12) Use of the retroviral vectors according to ~~any one of claims 1 to 3~~ claim 1 for the preparation of a medicament for the genetic modification of CD4-positive cells or for the provision of an active agent for gene therapy.

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Summary

Described is the generation and application of novel retroviral vectors for cell-specific gene transfer, especially a method for the generation of retroviral vectors that encompass viral cores derived from the murine leukemia virus (MLV) and envelope proteins derived from human immunodeficiency virus (HIV) or simian immunodeficiency (SIV). These vectors can be used for the gene transfer into selected cell types, especially into CD4-positive mamalian cells.